

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C.20231
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year)

27 September 2000 (27.09.00)

International application No.

PCT/GB00/00286

Applicant's or agent's file reference

XA1003

International filing date (day/month/year)

02 February 2000 (02.02.00)

Priority date (day/month/year)

08 February 1999 (08.02.99)

Applicant

GRAY, Ian, Lindsay

1. The designated Office is hereby notified of its election made:



in the demand filed with the International Preliminary Examining Authority on:

19 August 2000 (19.08.00)



in a notice effecting later election filed with the International Bureau on:

2. The election



was



was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

Zakaria EL KHODARY

Telephone No.: (41-22) 338.83.38

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5020

PCT

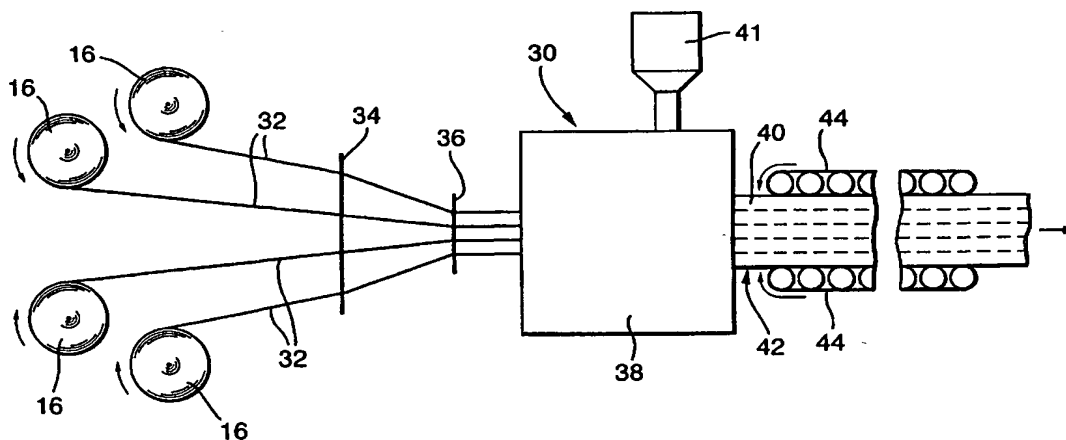
WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7 : B29C 70/52		A1	(11) International Publication Number:--- WO 00/47397
			(43) International Publication Date: 17 August 2000 (17.08.00)
(21) International Application Number: PCT/GB00/00286 (22) International Filing Date: 2 February 2000 (02.02.00) (30) Priority Data: 9902584.3 8 February 1999 (08.02.99) GB (71) Applicant (for all designated States except US): BAE SYSTEMS PLC [GB/GB]; Warwick House, P.O. Box 87, Farnborough Aerospace Centre, Farnborough, Hampshire GU14 6YU (GB). (72) Inventor; and (75) Inventor/Applicant (for US only): GRAY, Ian, Lindsay [GB/GB]; BAE Systems, Building 07C, New Filton House, Filton, Bristol, Avon BS99 7AR (GB). (74) Agent: EDIS, Ronald, Malcolm; BAE Systems, Group IP Dept., Lancaster House, P.O. Box 87, Farnborough Aerospace Centre, Farnborough, Hampshire GU14 6YU (GB).		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published With international search report.	

(54) Title: FIBRE REINFORCED COMPOSITES AND METHOD OF MAKING SAME



(57) Abstract

A method is disclosed for producing a fibre reinforced composite by pultrusion having variable strength characteristics along its length including the steps of drawing through a pultrusion die (38) a series of reinforcing fibres (32) to form a pultruded fibre composite product. The method is characterised by incorporating in the reinforcing fibres (14) prior to the pultrusion step additional fibres (20) to form modified fibres (32) having a characteristic such as tenacity or modulus different from that of the first said reinforcing fibres (14) in order to vary the strength characteristics of the final composite (42) substantially without altering the cross-sectional area thereof. A curable or settable plastics material (40) is applied around the fibres during the pultrusion step and which is cured, part-cured or allowed to set to form the finished composite (42).

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Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

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FIBRE REINFORCED COMPOSITES AND METHOD OF MAKING SAME

This invention relates to fibre reinforced composites, in particular those used in high strength applications such as aircraft structures.

It is known to manufacture by pultrusion, composite structural members for use as skin stringers for aircraft wing and fuselage skins, for example. Such pultruded members are currently manufactured by drawing reinforcing fibres, such as carbon fibres, through a die, applying liquid plastics matrix material to the fibres, and curing or setting the whole to form a fibre reinforced composite structural member of the required cross-sectional shape and of indefinite length.

There exists a requirement to provide structural members such as aircraft wing or fuselage skin stringers with strength characteristics which vary along their length. It is currently proposed to provide such a member with variable cross-section in order to achieve the variation in strength required. Unfortunately such changes in cross-sectional shape for pultruded members are not easy to achieve. Currently variable shape pultrusion dies are being investigated with a view to allowing changes in cross-sectional shape of the structural member along its length. It will be appreciated that such variable cross-section dies will be somewhat complex and possibly difficult to produce. In addition their reliability and/or longevity may be limited.

According to the present invention there is provided a method of producing a fibre reinforced composite by pultrusion having strength characteristics which vary along the length of the composite, the method including the steps of drawing through a pultrusion die a series of reinforcing fibres to form a pultruded fibre composite product characterised by incorporating in the reinforcing fibres prior to the pultrusion step additional fibres, which may have a characteristic such as tenacity or modulus different from that of the said reinforcing fibres, in order to vary the strength characteristics of the final product along the said length substantially without altering

the cross-sectional area thereof, a curable or settable plastics matrix material being applied around the fibres and solidified by being cured or allowed to set to form the finished composite.

By "tenacity" is meant tensile strength per unit area of fibre. In this way a higher tenacity fibre may have a reduced cross sectional area compared with a lower tenacity fibre. By "modulus" is meant Young's modulus for the fibre concerned.

Preferably, the additional fibres are either spliced between discrete lengths of the reinforcing fibres, or interlaced or otherwise distributed amongst continuous said reinforcing fibres.

The fibres may be pre-impregnated with the plastics material before being drawn through the protrusion die. If the fibres are not pre-impregnated then a plastics material may be introduced amongst the fibres as they are drawn through the die. Where the plastics material is curable, the pultrusion die may be heated to effect curing or part curing of the plastics material.

The fibres may be in the form of individual strands, or may form woven and/or non-woven webs.

A method in accordance with the invention will now be described by way of example, and with reference to the accompanying drawings in which:

Figure 1 is a diagrammatic view of an apparatus for splicing fibres for use in a method in accordance with the invention;

Figure 2a is an alternative enlarged diagrammatic view of box A in Figure 1;

Figure 2b is an enlarged diagrammatic view of box A in Figure 1; and

Figure 3 is a diagrammatic view of a pultrusion apparatus for producing a fibre reinforced composite in accordance with the invention.

Figure 1 shows an apparatus for splicing fibres and comprises a substantially horizontal work bench 10, a source roll 12 of reinforcing fibres 14 and a product receiving roll 16.

Reinforcing fibres 14 are drawn off the source roll 12, across the work bench 10 and wound onto the product receiving roll 16.

Additional fibres 20 are provided which can either be spliced between lengths 26, 28 of the reinforcing fibres (Figure 2a) to provide an area 18 having a characteristic such as tenacity or modulus different from that of the fibres 14, or can be interlaced or otherwise distributed amongst the reinforcing fibres 14 (Figure 2b).

When the additional fibres 20, are spliced into the reinforcing fibres 14 as shown in Figure 2a, the ends of the fibres may either be knotted together or air blown so that the fibres become matted together to form a joint 22. It should be noted that the joint 22 so formed primarily allows continuity of the pultrusion process.

It should be further noted that it is preferable for the introduction of a change in fibre type to be phased over the predetermined area or areas 18. By phasing the introduction of the additional fibres, stress on individual joints between the fibres is spread over a greater area thus minimising stress concentration.

In Figure 2a it will be noted that the phased introduction leads to the additional fibres 20 meeting the reinforcing fibres 14 on an oblique plane 24 although it will be understood that other suitable phased introduction, e.g. a zig-zag, could be used.

The product receiving roll 16 is then transferred to a pultruding apparatus 30 as shown in Figure 3. The pultruding apparatus 30 includes supports (not shown) for a number of product receiving rolls 16. In the present example, four rolls 16 are carried by the supports. The modified fibres, indicated at 32, are drawn from the rolls 16 and aligned through guide vanes 34 and 36 so as to position them in a predetermined pattern.

The modified fibres 32 are then pulled through a pultrusion die 38. Resin 40 from a supply 41 is injected amongst the fibres 32 as they are drawn through the die 38 to produce a fibre reinforced composite 42 of substantially constant cross-sectional area. The fibre reinforced composite 42 is part drawn out through the die 38 by reciprocating caterpillar pullers 44.

Where the additional fibres 20 are distributed amongst the reinforcing fibres 14 as in Figure 2b there is a reduction in the ratio of fibre 32 to resin 40 content of the final composite 42 compared to the composition in which the fibres are spliced as shown in Figure 2a.

The fibres 32 may also be pre-impregnated with resin before drawing them through the pultrusion die 38. That may alleviate, or avoid altogether, the need to inject resin 40 amongst the fibres 32 as they are pulled through the die 38.

The fibres 32 may be in the form of a fabric, which may be woven and/or non-woven.

If the resin is curable, the pultrusion die 38 may be heated to effect curing or part curing of the resin.

In the present example, the plastics matrix material used is a resin, although it may also be any adhesive/matrix system.

The length of the predetermined area 18 along the fibres 14 can be selected as required.

The above methods enable the production of a fibre reinforced composite having variable strength characteristics along its length without alteration of the cross-sectional area of the pultruded composite.

Claims

1. A method of producing a fibre reinforced composite by pultrusion having variable strength characteristics along its length including the steps of drawing through a pultrusion die a series of reinforcing fibres to form a pultruded fibre composite product characterised by incorporating in the reinforcing fibres prior to the pultrusion step additional fibres in order to vary the strength characteristics of the final product substantially without altering the cross-sectional area thereof, a plastics matrix material being applied around the fibres and allowed to solidify to form the finished composite.
2. A method according to claim 1 in which the additional fibres have a characteristic different from that of the said reinforcing fibres.
3. A method according to claim 2 in which the said characteristic is selected from the group fibre tenacity and fibre modulus.
4. A method according to claim 1, 2 or 3 in which the additional fibres are spliced between discrete lengths of the reinforcing fibres.
5. A method according to claim 1, 2 or 3 in which the additional fibres are interlaced amongst continuous said reinforcing fibres.
6. A method according to any of claims 1 to 5 in which the plastics matrix material is applied to the fibres, within the die.
7. A method according to any of claims 1 to 5 in which the fibres are pre-impregnated with a plastics matrix material before being drawn through the die.
8. A method according to any preceding claim in which the fibres are in the form of a woven web.

9. A method according to any one of claims 1 - 7 in which the fibres are in the form of a non-woven web.
10. A composite structural member produced according to the method of any preceding claim.
11. A composite structural member according to claim 10 comprising an aircraft skin stringer.
12. An aircraft aerofoil incorporating a composite structural member according to claim 10 or 11.
13. An aircraft containing a composite produced according to the method of any of claims 1 to 9.

Fig.1.

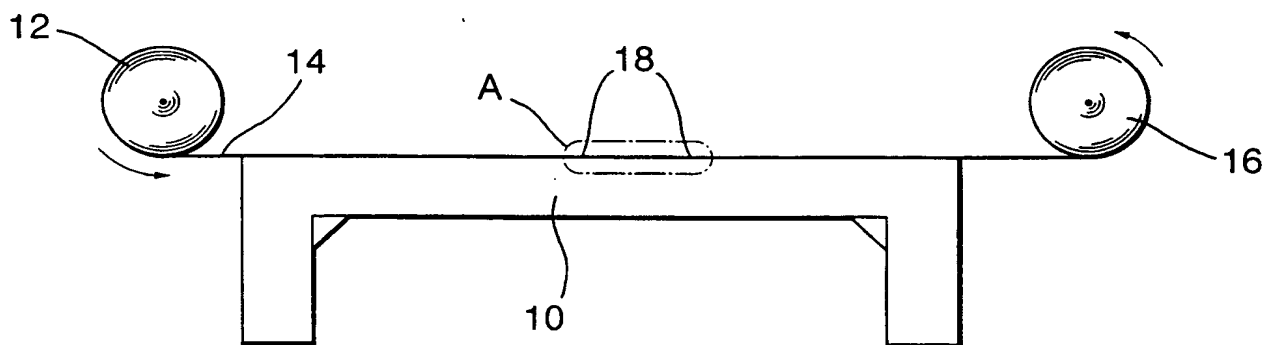


Fig.2a.

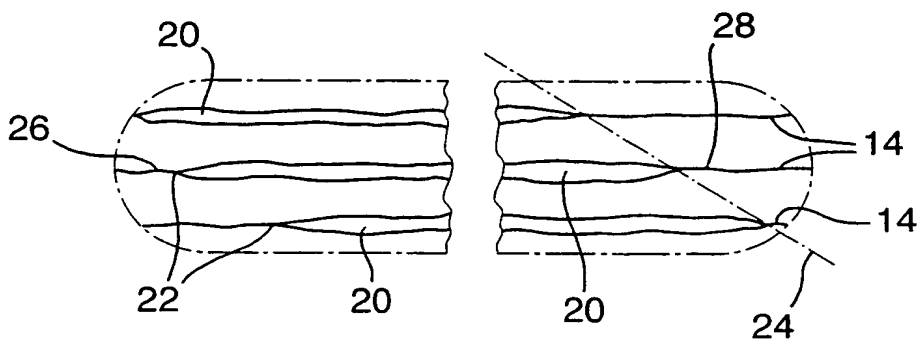


Fig.2b.

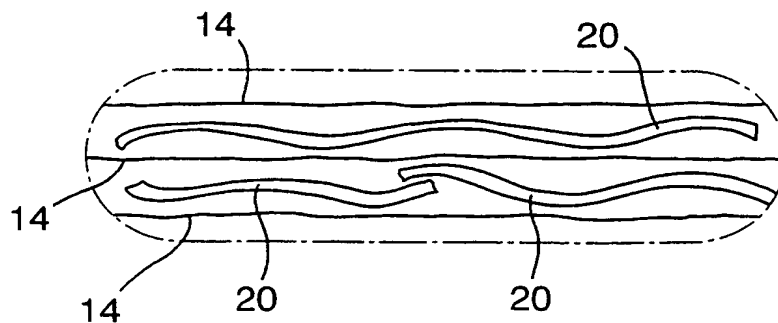
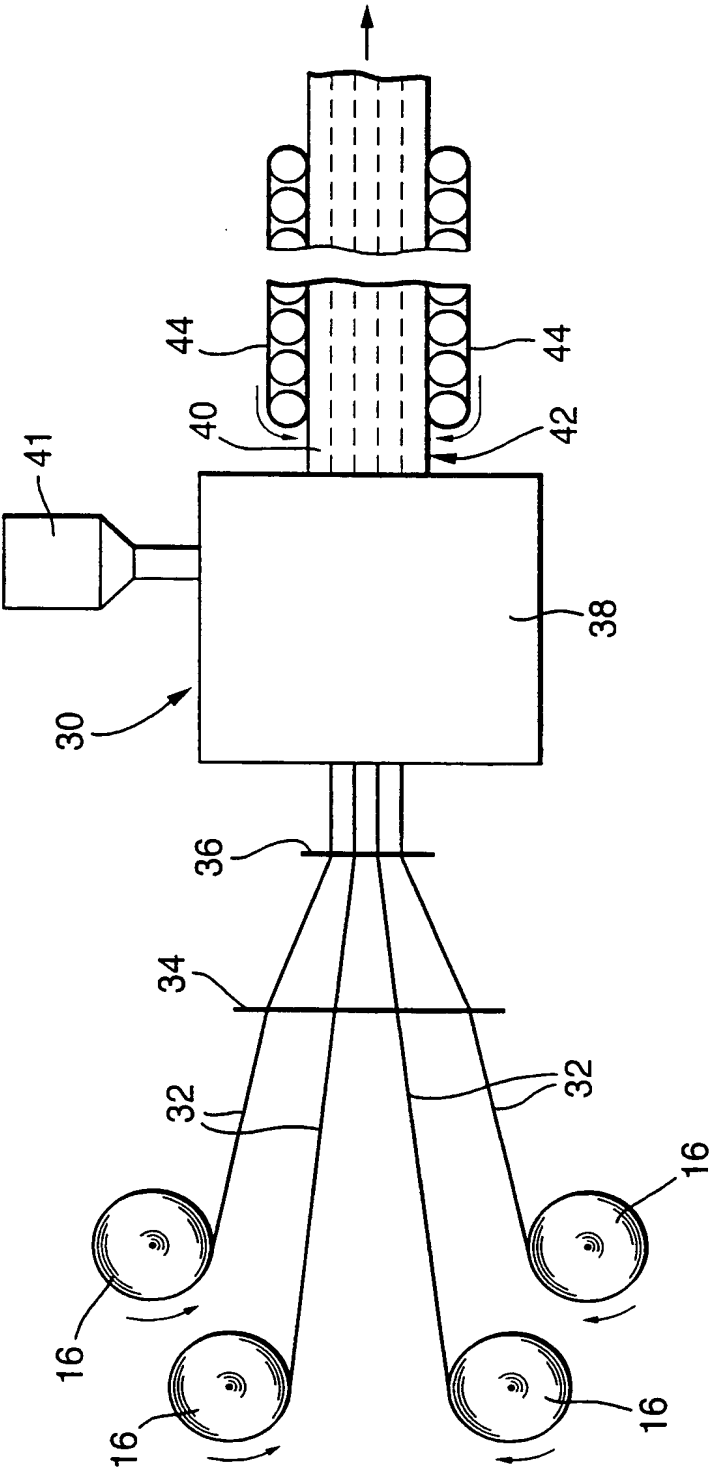


Fig.3.



INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 00/00286

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B29C70/52

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 B29C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 439 215 A (RATCHFORD DAVID) 8 August 1995 (1995-08-08) column 4, line 33 - line 36	1, 6, 10
A	US 4 605 254 A (CARMEN JOSEPH A) 12 August 1986 (1986-08-12) column 5, line 56 - line 59	1-13



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

8 May 2000

Date of mailing of the international search report

16/05/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Van Wallene, A

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 00/00286

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
US 5439215	A	08-08-1995	CA	2132567 A	25-07-1995
US 4605254	A	12-08-1986	US	4570988 A	18-02-1986

REC'D 11 MAY 2001

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference XA1003	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/GB00/00286	International filing date (day/month/year) 02/02/2000	Priority date (day/month/year) 08/02/1999
International Patent Classification (IPC) or national classification and IPC B29C70/52		
Applicant [BRITISH AEROSPACE PUBLIC LIMITED COMPANY et al.] BAE SYSTEMS PLC		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 5 sheets, including this cover sheet.

- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 4 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand 19/08/2000	Date of completion of this report 09.05.2001
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Golombek, G Telephone No. +49 89 2399 2909 

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB00/00286

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, pages:

2-4 as originally filed

1,1a as received on 17/04/2001 with letter of 11/04/2001

Claims, No.:

1-11 as received on 12/02/2001 with letter of 07/02/2001

Drawings, sheets:

1/2,2/2 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB00/00286

- ☐ the description, pages:
☒ the claims, Nos.: 12,13
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-11
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-11
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-11
	No:	Claims	

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB00/00286

to point V

Claim 1

Document D1 = US-A5 439 215 discloses a method of producing fibre reinforced composite by pultrusion having variable strength along its length including drawing through a pultrusion die a series of reinforcing fibres to form a pultruded fibre composite product (see figures 6 - 9 and columns 3 and 4 of D1).

Neither D1 nor the other documents of the search report disclose that prior to the putrusion step additional fibres having different characteristic should be added.

Furthermore, a person skilled in the art does not get any hint to modify the known method in the manner claimed.

Thus, the subject-matter of claim 1 is new and industrially applicable and it involves an inventive step and the claim itself meets the requirements of Article 33 PCT

Claims 2 - 8

These dependent claims disclose preferred embodiments of the method claimed.

Claim 9 and 11

These claims concern to products directly obtainable by the method claimed. These products are new and inventive, since they comprise additional fibres having different characteristic. This circumstance is not known in the prior art.

Thus, the subject-matter of claim 9 and 11 is new and industrially applicable and it involves an inventive step and the claims themselves meet the requirements of Article 33 PCT.

Claim 10

This dependent claim discloses preferred embodiments of the product claimed.

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB00/00286

t point VII

- 1 Independent claims have not been filed in the two-part form in accordance with Rule 6.3(b) PCT, with those features known in combination from the prior art (D1) being placed in a preamble (Rule 6.3(b)(i) PCT) and with the remaining features being included in a characterising part (Rule 6.3(b)(ii) PCT).
- 2 The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

To point VIII

Although claims 1, 9 and 11 have been drafted as separate independent claims, they appear to relate effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought and in respect of the terminology used for the features of that subject-matter. The aforementioned claims therefore lack conciseness. Moreover, lack of clarity of the claims as a whole arises, since the plurality of independent claims makes it difficult, if not impossible, to determine the matter for which protection is sought, and places an undue burden on others seeking to establish the extent of the protection.

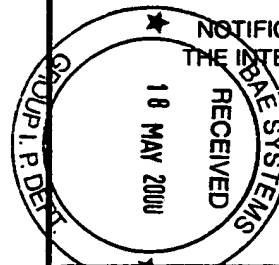
Hence, claims 1, 9 and 11 do not meet the requirements of Article 6 PCT.

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

To:
BRITISH AEROSPACE plc
 Group I.P. Dept.
 Attn. EDIS, RONALD MALCOM
 Lancaster House, P.O. Box 87
 Farnborough Aerospace Centre
 Farnborough, Hampshire, GU14 6YU
 UNITED KINGDOM



NOTIFICATION OF TRANSMITTAL OF
 THE INTERNATIONAL SEARCH REPORT
 OR THE DECLARATION

(PCT Rule 44.1)

11/16/7/AR
 16/7/CC

Applicant's or agent's file reference XA1003	Date of mailing (day/month/year) 16/05/2000
International application No. PCT/GB 00/ 00286	International filing date (day/month/year) 02/02/2000
Applicant BRITISH AEROSPACE PUBLIC LIMITED COMPANY et al.	

1. ☒ The applicant is hereby notified that the International Search Report has been established and is transmitted herewith.

Filing of amendments and statement under Article 19:
 The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report; however, for more details, see the notes on the accompanying sheet.

Where? Directly to the International Bureau of WIPO
 34, chemin des Colombettes
 1211 Geneva 20, Switzerland
 Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no International Search Report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

3. ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Further action(s):** The applicant is reminded of the following:

Shortly after **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

Within **19 months** from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

Within **20 months** from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the International Searching Authority European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Sandrine Polenzani
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NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When?

Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

NOTES TO FORM PCT/ISA/220 (continued)

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:
"Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

"Statement under article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international application is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference XA1003	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/GB 00/ 00286	International filing date (day/month/year) 02/02/2000	(Earliest) Priority Date (day/month/year) 08/02/1999
Applicant BRITISH AEROSPACE PUBLIC LIMITED COMPANY et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).
- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing:
- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

FIBRE REINFORCED COMPOSITES AND METHOD OF MAKING SAME

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

3

☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 00/00286

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B29C70/52

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHEDMinimum documentation searched (classification system followed by classification symbols)
IPC 7 B29C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 439 215 A (RATCHFORD DAVID) 8 August 1995 (1995-08-08) column 4, line 33 - line 36	1,6,10
A	US 4 605 254 A (CARMEN JOSEPH A) 12 August 1986 (1986-08-12) column 5, line 56 - line 59	1-13

☐ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

8 May 2000

Date of mailing of the international search report

16/05/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Van Wallene, A

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 00/00286

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5439215 A	08-08-1995	CA 2132567 A	25-07-1995
US 4605254 A	12-08-1986	US 4570988 A	18-02-1986

PCT Rec'd 23 FEB 2000

Receiving Office use only

REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

International Application No.

International Filing Date

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference
(if desired) (12 characters maximum) XA1003

Box No. I TITLE OF INVENTION
FIBRE REINFORCED COMPOSITES

Box No. II APPLICANT

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

BRITISH AEROSPACE PUBLIC LIMITED COMPANY
Warwick House, P O Box 87
Farnborough Aerospace Centre
Farnborough
Hampshire GU14 6YU
United Kingdom

☐ This person is also inventor.

Telephone No.
01252 384628

Facsimile No.
01252 383091

Teleprinter No.

State (that is, country) of nationality:
GB

State (that is, country) of residence:
GB

This person is applicant for the purposes of: ☐ all designated States ☒ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

GRAY, Ian Lindsay
BAE SYSTEMS
Building 07C, New Filton House
Filton
Bristol, Avon
BS99 7AR, United Kingdom

This person is:

☐ applicant only

☒ applicant and inventor

☐ inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:
GB

State (that is, country) of residence:
GB

This person is applicant for the purposes of: ☐ all designated States ☐ all designated States except the United States of America ☒ the United States of America only ☐ the States indicated in the Supplemental Box

☐ Further applicants and/or (further) inventors are indicated on a continuation sheet.

Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:

☒ agent ☐ common representative

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

EDIS, Ronald Malcolm
British Aerospace PLC
Group IP Department
Lancaster House, P O Box 87
Farnborough Aerospace Centre
Farnborough, Hampshire GU14 6YU, United Kingdom

Telephone No.
01252 383430

Facsimile No.
01252 383091

Teleprinter No.

☐ Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

Box No. V DESIGNATION OF STATES

The following designations are hereby made under Rule 4.9(a) (mark the applicable check-boxes; at least one must be marked):

Regional Patent

- ☒ **AP** ARIPO Patent: GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, SD Sudan, SL Sierra Leone, SZ Swaziland, TZ United Republic of Tanzania, UG Uganda, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT
- ☒ **EA** Eurasian Patent: AM Armenia, AZ Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT
- ☒ **EP** European Patent: AT Austria, BE Belgium, CH and LI Switzerland and Liechtenstein, CY Cyprus, DE Germany, DK Denmark, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, SE Sweden, and any other State which is a Contracting State of the European Patent Convention and of the PCT
- ☒ **OA** OAPI Patent: BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroon, GA Gabon, GN Guinea, GW Guinea-Bissau, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT (if other kind of protection or treatment desired, specify on dotted line)

National Patent (if other kind of protection or treatment desired, specify on dotted line):

- | | |
|---|---|
| <input checked="" type="checkbox"/> AE United Arab Emirates | <input checked="" type="checkbox"/> LR Liberia |
| <input checked="" type="checkbox"/> AL Albania | <input checked="" type="checkbox"/> LS Lesotho |
| <input checked="" type="checkbox"/> AM Armenia | <input checked="" type="checkbox"/> LT Lithuania |
| <input checked="" type="checkbox"/> AT Austria | <input checked="" type="checkbox"/> LU Luxembourg |
| <input checked="" type="checkbox"/> AU Australia | <input checked="" type="checkbox"/> LV Latvia |
| <input checked="" type="checkbox"/> AZ Azerbaijan | <input checked="" type="checkbox"/> MA Morocco |
| <input checked="" type="checkbox"/> BA Bosnia and Herzegovina | <input checked="" type="checkbox"/> MD Republic of Moldova |
| <input checked="" type="checkbox"/> BB Barbados | <input checked="" type="checkbox"/> MG Madagascar |
| <input checked="" type="checkbox"/> BG Bulgaria | <input checked="" type="checkbox"/> MK The former Yugoslav Republic of Macedonia |
| <input checked="" type="checkbox"/> BR Brazil | <input checked="" type="checkbox"/> MN Mongolia |
| <input checked="" type="checkbox"/> BY Belarus | <input checked="" type="checkbox"/> MW Malawi |
| <input checked="" type="checkbox"/> CA Canada | <input checked="" type="checkbox"/> MX Mexico |
| <input checked="" type="checkbox"/> CH and LI Switzerland and Liechtenstein | <input checked="" type="checkbox"/> NO Norway |
| <input checked="" type="checkbox"/> CN China | <input checked="" type="checkbox"/> NZ New Zealand |
| <input checked="" type="checkbox"/> CR Costa Rica | <input checked="" type="checkbox"/> PL Poland |
| <input checked="" type="checkbox"/> CU Cuba | <input checked="" type="checkbox"/> PT Portugal |
| <input checked="" type="checkbox"/> CZ Czech Republic | <input checked="" type="checkbox"/> RO Romania |
| <input checked="" type="checkbox"/> DE Germany | <input checked="" type="checkbox"/> RU Russian Federation |
| <input checked="" type="checkbox"/> DK Denmark | <input checked="" type="checkbox"/> SD Sudan |
| <input checked="" type="checkbox"/> DM Dominica | <input checked="" type="checkbox"/> SE Sweden |
| <input checked="" type="checkbox"/> EE Estonia | <input checked="" type="checkbox"/> SG Singapore |
| <input checked="" type="checkbox"/> ES Spain | <input checked="" type="checkbox"/> SI Slovenia |
| <input checked="" type="checkbox"/> FI Finland | <input checked="" type="checkbox"/> SK Slovakia |
| <input checked="" type="checkbox"/> GB United Kingdom | <input checked="" type="checkbox"/> SL Sierra Leone |
| <input checked="" type="checkbox"/> GD Grenada | <input checked="" type="checkbox"/> TJ Tajikistan |
| <input checked="" type="checkbox"/> GE Georgia | <input checked="" type="checkbox"/> TM Turkmenistan |
| <input checked="" type="checkbox"/> GH Ghana | <input checked="" type="checkbox"/> TR Turkey |
| <input checked="" type="checkbox"/> GM Gambia | <input checked="" type="checkbox"/> TT Trinidad and Tobago |
| <input checked="" type="checkbox"/> HR Croatia | <input checked="" type="checkbox"/> TZ United Republic of Tanzania |
| <input checked="" type="checkbox"/> HU Hungary | <input checked="" type="checkbox"/> UA Ukraine |
| <input checked="" type="checkbox"/> ID Indonesia | <input checked="" type="checkbox"/> UG Uganda |
| <input checked="" type="checkbox"/> IL Israel | <input checked="" type="checkbox"/> US United States of America |
| <input checked="" type="checkbox"/> IN India | <input checked="" type="checkbox"/> UZ Uzbekistan |
| <input checked="" type="checkbox"/> IS Iceland | <input checked="" type="checkbox"/> VN Viet Nam |
| <input checked="" type="checkbox"/> JP Japan | <input checked="" type="checkbox"/> YU Yugoslavia |
| <input checked="" type="checkbox"/> KE Kenya | <input checked="" type="checkbox"/> ZA South Africa |
| <input checked="" type="checkbox"/> KG Kyrgyzstan | <input checked="" type="checkbox"/> ZW Zimbabwe |
| <input checked="" type="checkbox"/> KP Democratic People's Republic of Korea | |
| <input checked="" type="checkbox"/> KR Republic of Korea | |
| <input checked="" type="checkbox"/> KZ Kazakhstan | |
| <input checked="" type="checkbox"/> LC Saint Lucia | |
| <input checked="" type="checkbox"/> LK Sri Lanka | |

Check-boxes reserved for designating States which have become party to the PCT after issuance of this sheet:

☐
☐

Precautionary Designation Statement: In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. (Confirmation (including fees) must reach the receiving Office within the 15-month time limit.)

B x No. VI PRIORITY CLAIM		<input type="checkbox"/> Further priority claims are indicated in the Supplemental Box.		
Filing date of earlier application (day/month/year)	Number of earlier application	When earlier application is:		
		national application: country	regional application: regional Office	international application: receiving Office
item (1) 08/02/1999	9902584.3	GB		
item (2)				
item (3)				

☒ The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (only if the earlier application was filed with the Office which for the purposes of the present international application is the receiving Office) identified above as item(s): (1)

* Where the earlier application is an ARIPO application, it is mandatory to indicate in the Supplemental Box at least one country party to the Paris Convention for the Protection of Industrial Property for which that earlier application was filed (Rule 4.10(b)(ii)). See Supplemental Box.

Box No. VII INTERNATIONAL SEARCHING AUTHORITY

Choice of International Searching Authority (ISA) <small>(if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used):</small>	Request to use results of earlier search; reference to that search (if an earlier search has been carried out by or requested from the International Searching Authority):		
Date (day/month/year) 26/08/1999	Number 99302224.3-1253	Country (or regional Office) EP	

ISA / EP

Box No. VIII CHECK LIST; LANGUAGE OF FILING

This international application contains the following number of sheets: request : 3 description (excluding sequence listing part) : 4 claims : 2 abstract : 1 drawings : 2 sequence listing part of description : - Total number of sheets : 12	This international application is accompanied by the item(s) marked below: 1. <input checked="" type="checkbox"/> fee calculation sheet 2. <input type="checkbox"/> separate signed power of attorney 3. <input checked="" type="checkbox"/> copy of general power of attorney; reference number, if any: 4. <input type="checkbox"/> statement explaining lack of signature 5. <input type="checkbox"/> priority document(s) identified in Box No. VI as item(s): 6. <input type="checkbox"/> translation of international application into (language): 7. <input type="checkbox"/> separate indications concerning deposited microorganism or other biological material 8. <input type="checkbox"/> nucleotide and/or amino acid sequence listing in computer readable form 9. <input checked="" type="checkbox"/> other (specify): GB FORM 23/77 REQUEST CERTIFIED COPY
--	---

Figure of the drawings which should accompany the abstract: 3	Language of filing of the international application: ENGLISH
---	--

Box No. IX SIGNATURE OF APPLICANT OR AGENT

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).

R M Edis

Ronald Malcolm EDIS

For receiving Office use only	
1. Date of actual receipt of the purported international application: 3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application: 4. Date of timely receipt of the required corrections under PCT Article 11(2): 5. International Searching Authority (if two or more are competent): ISA /	2. Drawings: <input type="checkbox"/> received: <input type="checkbox"/> not received: 6. <input type="checkbox"/> Transmittal of search copy delayed until search fee is paid.

For International Bureau use only
Date of receipt of the record copy by the International Bureau:

PCT

FEE CALCULATION SHEET

Annex to the Request

For receiving Office use only

International application No.

Date stamp of the receiving Office

Applicant's or agent's
file reference

XA1003

Applicant

BRITISH AEROSPACE PUBLIC LIMED COMPANY

CALCULATION OF PRESCRIBED FEES

1. TRANSMITTAL FEE £55.00 T

2. SEARCH FEE £638.00 S

International search to be carried out by EP
(If two or more International Searching Authorities are competent in relation to the international application, indicate the name of the Authority which is chosen to carry out the international search.)

3. INTERNATIONAL FEE

Basic Fee

The international application contains 12 sheets.

first 30 sheets £264.00 b1

x remaining sheets additional amount = b2

Add amounts entered at b1 and b2 and enter total at B £264.00 B

Designation Fees

The international application contains MAX designations.

8 x £56.00 = £448.00 D

number of designation fees payable (maximum 8) amount of designation fee

Add amounts entered at B and D and enter total at I £712.00 I

(Applicants from certain States are entitled to a reduction of 75% of the international fee. Where the applicant is (or all applicants are) so entitled, the total to be entered at I is 25% of the sum of the amounts entered at B and D.)

4. FEE FOR PRIORITY DOCUMENT (if applicable) £22.00 P

5. TOTAL FEES PAYABLE £1427.00

Add amounts entered at T, S, I and P, and enter total in the TOTAL box

TOTAL

☐ The designation fees are not paid at this time.

MODE OF PAYMENT

☒ authorization to charge
deposit account (see below)

☐ bank draft

☐ coupons

☐ cheque

☐ cash

☐ other (specify):

☐ postal money order

☐ revenue stamps

DEPOSIT ACCOUNT AUTHORIZATION (this mode of payment may not be available at all receiving Offices)

The RO/ GB ☒ is hereby authorized to charge the total fees indicated above to my deposit account.

☐ (this check-box may be marked only if the conditions for deposit accounts of the receiving Office so permit) is hereby authorized to charge any deficiency or credit any overpayment in the total fees indicated above to my deposit account.

☐ is hereby authorized to charge the fee for preparation and transmittal of the priority document to the International Bureau of WIPO to my deposit account.

D02887

Deposit Account No.

Date (day/month/year)

Signature